

LAWRENCE LIVERMORE REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Dec. 21, 2009 – Jan. 11, 2010

LLNL places in *Discover Magazine's* top 100 stories of 2009



Inside the National Ignition Facility

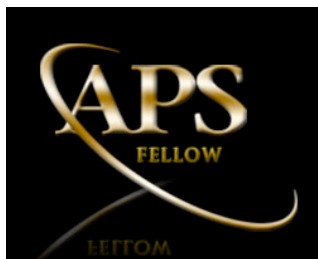
The Lab's National Ignition Facility won a spot in *Discover Magazine's* top 100 stories of 2009.

The National Ignition Facility starts warming up for its main act this year: nuclear fusion research. Lab researchers will use 192 powerful laser beams to zap a pellet filled with deuterium and tritium, two heavy forms of hydrogen in an attempt to create fusion. The pellet will immediately implode, reaching a temperature of more than 100 million degrees at a pressure 100 billion times that of Earth's atmosphere.

Under those conditions the hydrogen will fuse into helium, releasing a vast amount of energy and creating the kinds of nuclear processes that occur deep inside the sun. The NIF also will perform astrophysics experiments. Research at the facility could speed the development of abundant, clean fusion power.

For more, go to <http://discovermagazine.com/columns/top-100-stories-of-2009/?searchterm=Top%20100%20stories%20of%202009>

Five Lab researchers named APS fellows



Five Lab researchers have joined the ranks of the more than 200 American Physical Society (APS) fellows for 2009. They are:

David K. Bradley, a physicist in the Shock Physics Group of the Physics Division; Laurence Fried, the Extreme Chemistry group leader in Chemical Sciences; Arthur Molvik, a Lab retiree, who worked in the Fusion Energy Program; Christine Orme, a staff scientist in the Biosciences and Biotechnology Division; and Scott Wilks, a research scientist in the Physics Division.

APS fellowships are a distinct honor given after extensive review. Election to APS fellowship is limited to no more than one half of 1 percent of APS's membership for a given year. Receiving a fellowship reflects the honor and approbation of one's professional peers. This year, more than 200 members were elected APS fellows.

To read more, go to https://newsline.llnl.gov/_rev02/articles/2009/dec/12.18.09-aps.php

Goldstein goes for the gold with AAAS fellowship



Bill Goldstein

Physical and Life Sciences Associate Director Bill Goldstein has been awarded the distinction of the American Association for the Advancement of Science (AAAS) Fellow. Election as a fellow is an honor bestowed upon AAAS members by their peers.

This year, 531 members have been awarded this honor for their scientifically or socially distinguished efforts to advance science or its applications. New fellows will be presented with an official certificate and a gold and blue (representing science and engineering, respectively) pin on Saturday, Feb. 20, at the AAAS Fellows Forum during the 2010 AAAS Annual Meeting in San Diego.

As part of the physics section, Goldstein was elected for distinguished contributions to plasma modeling and diagnostics and for leadership in support of the Department of Energy national security programs.

To read more, go to https://newsline.llnl.gov/_rev02/articles/2009/dec/12.18.09-goldstein.php

NIF goes SciFi



Inside the target chamber of the National Ignition Facility

A show on the National Ignition Facility recently was featured on the SciFi channel.

This year, LLNL scientists will take lasers to a new level, trying to produce energy by imitating the way the sun creates the light and heat that support life on Earth.

The scientists will use a combination of 192 powerful lasers to generate the extreme heat and pressure that are needed to force hydrogen atoms to fuse. The combination loses a tiny bit of mass, which turns into a huge quantity of energy.

To see the show, go to https://publicaffairs.llnl.gov/news/lab_report/movies/science_sci-fi-science_20dec2009.mov

LLNL raises more than \$3 million for local charities



From left: Don Boyd, 2009 HOME Campaign chair; Brent Ives, Tracy mayor; George Miller, Laboratory director and LLNS president; Linda Barton, Livermore city manager; Don Biddle, Dublin councilman; Jeff Williams, Livermore councilman and Abram Wilson, San Ramon mayor.

The Laboratory, along with Lawrence Livermore National Security, LLC (LLNS) (the Lab's management company), raised more than \$3 million to give to the surrounding communities.

Laboratory employees pledged more than \$2 million to the HOME Campaign (Helping Others More Effectively) – an annual charitable drive that benefits community and nonprofit agencies in the Tri Valley, San Joaquin Valley and Greater Bay Area. In addition, LLNS announced it would again this year donate \$1 million in matching funds.

Last week, elected officials from the Tri-Valley and Tracy, along with representatives from various non-profit agencies, attended a presentation at the Laboratory to thank employees for their efforts in raising the record-breaking amount that will benefit the community.

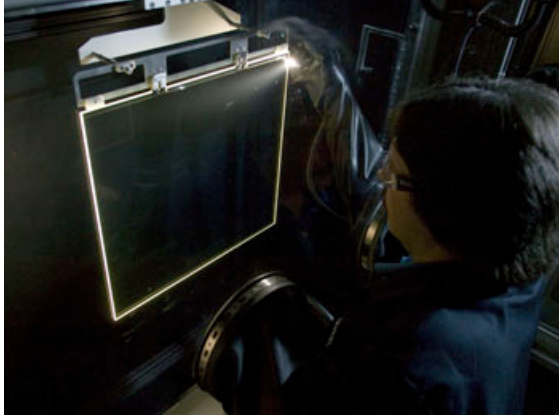
The total contribution, \$3,026,151, represents the largest amount ever raised by Laboratory employees during the HOME Campaign's 35-year history.

Latest Newsline available



Newsline provides the latest Lab research and operations news. See the most recent issue at <https://newsline.llnl.gov>

Photo of the week



Clean n' shine: A technician at Schott Optics inspects a Disposable Debris Shield to insure all optics are meeting the demanding specifications of the Lab's National Ignition Facility.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the Livermore Lab Report, send e-mail <mailto:labreport@llnl.gov>.

The Livermore Lab Report archive is available at:
https://publicaffairs.llnl.gov/news/lab_report/2009index.html